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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/644,937	08/23/2000	Anthony Nicholls	9476-003-999	1945

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EXAMINER

MARSCHEL, ARDIN H

ART UNIT

PAPER NUMBER

1631

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/644,937	NICHOLLS, ANTHONY
	Examiner Ardin Marschel	Art Unit 1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 September 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-144 is/are pending in the application.
- 4a) Of the above claim(s) 1-21,23-26 and 30-139 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 22,27-29 and 140-144 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) 1-144 are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date (3 sheets).
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission, filed on 9/20/04, has been entered.

NEW MATTER

Claims 22, 27-29, and 140-144 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 22, lines 17-18, has been amended to require a determining step therein where a "reducing" of molecules to $M + 1$. Applicant points to pages 40 and 45 for written support. Consideration of said pages as well as the entirety of the instant disclosure as filed has failed to reveal such a reduction practice as now in lines 17-18 of claim 22. Instead page 40, lines 5-10, describes an M dimensional subspace that N molecules occupy but nothing about reducing the set of N molecules as now set forth in claim 22, lines 17-18. Thus, NEW MATTER has been added to claim 22 and to claims 27-29 and 140-144 via dependence. It is noted that claim 22, lines 19-20, has been

amended to correspond to the lines 17-18 amendment and is thus equally contains NEW MATTER.

Claim 29 now contains NEW MATTER directed to the instant invention being "used by a pharmaceutical company". Applicant points to page 2, line 8, for written support for this claim 29 limitation. Consideration of said page 2 citation reveals that this is a background citation regarding what pharmaceutical companies have done but lacks any disclosure regarding the instant invention being so used. Therefore, this is NEW MATTER.

Claim 140 now includes NEW MATTER via requiring the constructing of a M-dimensional tree after storing. The ordering of this constructing of said tree "after" storing has not been disclosed as originally filed. Applicant points to the specification at page 50, line 5, to page 51, line 11, in REMARKS, filed 9/20/04, regarding support for claim 140. Consideration of said pages reveals that on page 50, line 8, M dimensional data points may be stored in a tree-like manner which discloses storing of such data after it has already been constructed as M dimensional which is opposite to what is now required in instant claim 140. Consideration of the remainder of pages 50-51 as well as the remainder of the instant disclosure, also has failed to reveal written support for claim 140 which therefore contains NEW MATTER.

Claim 142 contains NEW MATTER because the ordering of storing "prior" to calculating as in claim 142 has neither been found as filed nor in the citation pointed to by applicant on page 11, line 31, through page 12, line 1.

Claim 144 is also rejected hereinunder due to depending from claims 140 or 142 which thus includes the above NEW MATTER in claim 144 also.

NON-STATUTORY SUBJECT MATTER

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22, 27-29, and 140-144 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This rejection is reiterated and maintained from the previous office action, mailed 5/19/04.

Consideration of the "Computer-Related Inventions" section of the MPEP at section 2106, Part IV, subpart B, has revealed that the instant claims are directed to non-statutory subject matter without requiring performance of a result outside of a computer or representing some type of physical transformation which is concrete or tangible. Thus, the manipulation of data or conversion of data, in this case representation of a set of molecules is the claimed subject matter without any physical transformation outside of a computer or representation thereof. It is noted that the last line of instant claim 22 cites the storing of representation data but without requiring any outside of the computer output. For example, it is well known that a software program may output results to a computer file and not display it, for example, outside of the computer. The presence of such non-statutory subject matter on a computer medium or in a computer system or apparatus as for example in instant claim 144 does not prevent this rejection because such non-statutory still lacks the implementation of physical

functionality regarding such computer elements. Additionally, applicant may wish to argue that the methods are directed to a practical invention. Consideration of the MPEP at section 2106, Part IV, subpart B, sub-subpart 2, reveals that such practical subject matter requires the production of a useful, concrete, and tangible result which is reasonably interpreted as at least some physicality of result or representation of a physical transformation as required for statutory subject matter. Methods per se as instantly claimed subject matter are reasonably deemed a manipulation of data for such methods, without any physicality, that is, concrete or tangible, requirement. It is noted that the practical invention requirement is directed to a required combination of a useful, concrete, and tangible result which supports this rejection if only one or more of these criteria fail to be met in the claimed subject matter.

Applicant argues firstly that the constructing of a representation of a set of molecules stored in a computer database as amended into claim 22 is a data input from some external source. In response this amending in claim 22 is in the preamble of the claim and not clearly a method step as required in lines 4 et seq. in claim 22. Secondly in response this amending lacks any wording that requires the entry of data from an external source. Such constructing of a representation of molecules stored in a computer database is commonly merely a software generation of putative molecule representations and without any external molecule data input required. Thirdly, the representation of molecules is not deemed to require statutory subject matter due to lacking any representation of a concrete and/or tangible result as no result has been set forth that is some type of physical transformation or representation thereof. An

instructive example of this type of non-statutory subject matter is set forth in the MPEP at section 2106, (IV), (B), (2), (b), (ii), third paragraph, wherein an invention drawn to modeling noise, even understood as being a type of energy, is deemed non-statutory, whereas an invention drawn to noise filtering is statutory. The instant invention as claimed reasonably is a modeling type of invention and is therefore non-statutory. The instant invention lacks a representation of a physical transformation. Said noise filtering example is reasonably interpreted as representing a filtering of noise which is a physical transformation of some type of noise to a filtered form of noise.

Applicant then argues that the August 20, 2004 telephonic interview offered a comparing step as being statutory. This is disagreed with as noted below regarding said Interview. Since applicant's claims lack any tangible and concrete physical action or representation thereof, including the practice of instant claim 27, this argument is non-persuasive.

Applicant further argues that the instant claims comply with an examination framework for computer-related inventions as illustrated by a copy of an exhibited website section. Applicant then describes pertinent steps of this framework pointing to Box 5 and Box 6. Box 5 is not further pointed to and is responded to as apparently being a directive to determine whether a claimed invention is statutory or non-statutory. Box 6 is then argued as resulting in the "NO" result therefrom on said exhibit. This is acknowledged. Applicant then proceeds to Box 8 wherein a resulting answer is "YES". This is also acknowledged. Applicant then discusses Box 12 and concludes that the result is "YES". This is not agreed with because the result of the Box 12 inquiry is

properly "NO" for the following reasons. Two options are set forth in Box 12, one being performing independent physical acts and manipulating data representing physical objects or activities to achieve a practical application. The first option is "NO" as clearly the instant claim lack the performance of independent physical acts. The second option is also "NO" because it requires the achieving of a practical application via either representing physical objects or activities. This requirement of a practical application is in line with the above described noise examples wherein representing a physical object, such as noise, reasonably noise as a physical energy, failed to be statutory. Thus, the representing of physical objects in said Box 12 also must achieve a practical application. As explained above the practical application is explained as being concrete and tangible and not merely data or data manipulation. It is, however, acknowledged that even data manipulation is statutory if directed to data manipulation that represents a physical transformation. No such data manipulation that represents a physical transformation is present in the instant claims. Applicant's argument on page 34 of REMARKS, filed 9/20/04, regarding Box 12 disregard the requirement for a practical application and thus are inconsistent with a reasonably complete interpretation of the Box 12 decision criteria for a "YES" result. Thus, for the reasons set discussed above the result of the Box 12 inquiry is "NO" therefore also failing to support proceeding to Box 14 contrary to the allegations of applicant. Applicant also argues that the "NO" result from Box 12, in *arguendo*, taking the analysis to Box 13, results therefrom of a "NO" result from Box 13 to Box 14. In response, Box 13 also requires a practical application which as discussed above is directed to concrete and tangible invention

practice wherein data manipulation must at least represent a physical transformation. Thus, consistent with the above discussion pertaining to Box 12, the instantly claimed invention is reasonably data manipulation that models molecules without any representation of a physical transformation and thus is merely data manipulation. This reasonable interpretation of the instant claims results in a "YES" result from Box 13 corresponding with the basis of this rejection which is based on the instantly claimed invention as being drawn to non-statutory subject matter. In summary, neither of the two ways of analyzing applicant's recited claims results in a finding of statutory subject matter contrary to applicant's arguments.

Applicant then argues that the legal decision of State Street... supports the statutory nature of the instantly claimed invention and point to arguments set forth in a response mailed 3/10/03. In response these arguments have been responded to in the previous office action, mailed 5/19/04, and are reiterated here still as being non-persuasive for the same reasons. In summary the fact pattern in State Street... differs from the instant claims in controlling monetary transfer, a physical transformation of money, in contrast to the molecular modeling of the instant claims which lack any such transfer of material as well as lacking even the representation of such a physical transformation. Applicant then admits that manipulation of financial data therein produces a useful, concrete and tangible result directed to a final share price fixed for recording and reporting etc. and relied upon in subsequent trades. Thus, even applicant's admission supports the contrast between the instant invention and the fact pattern of State Street... consistent with the above fact pattern distinction therebetween

as also stated in said previous office action, mailed 5/19/04. With such a fact pattern difference the State Street... decision reasonably cannot be persuasive regarding this rejection against the instant claims.

Applicant further argues that the organization of molecular property data is not a mere abstract exercise since pharmaceutical companies maintain databases of all molecules that they have synthesized plus others available on the market. In response this argument supports this rejection in that such databases are clearly data and no manipulation, even of this data, related to any physical transformation or representation thereof that is concrete and tangible. Does applicant intend that the presence of databases in pharmaceutical companies somehow defines a concrete and tangible invention? This has not been argued nor understood as to what part of the MPEP, for example, indicates that the mere presence of such databases defines statutory subject matter. Applicant then argues that the instant invention searches large databases for similar molecules to yield a tangible result that impacts the real world. In response this is an argument that is directed to limitations which are not present in the instant claims. There are no "real world impact" limitations in any of the instant claims under examination. Database similarity evaluation is performed in the instant claims to result in an M dimensional subspace with storing thereof (instant claim 22, lines 14-21), but without any usage thereof anywhere in said claim nor in the other claims that are under examination. Does applicant intend that "storing" data is what documents statutory subject matter? This is non-persuasive as discussed above as not defining a concrete and tangible invention other than manipulating data which falls short of being statutory.

Applicant then states difficulty in seeing how the result of the instant invention is any less useful, concrete and tangible than recording a share price. In response the share price is not merely recorded in the claims of State Street but rather the exemplified claim 1 in said legal decision in at least part (g) stores data in a storage means that represents "aggregate year-end income, expenses, and capital gain or loss for a portfolio and each of the funds". Thus, as noted above the data being manipulated via storage in this part of the State Street... claim clearly represents various types of monetary (a physical material) movement such as expenses etc. whereas no movement of any kind is set forth regarding the "representation of said set of molecules" which ends instant claim 22. Representing a set of molecules is data which contrasts with the monetary flow physical result as in State Street....

Applicant lastly argues that recent patents issued in 2004 claim computer-implemented methods for manipulating data. In response each application for a patent will be treated on its own merits.

INTERVIEW SUMMARY OF APPLICANT PARTIALLY DISAGREED WITH

Applicant's summary of the Interview held on 8/20/04 is agreed with as set forth in the REMARKS, filed 9/20/04, except for the following. In applicant's REMARKS, filed 9/20/04, on page 33, lines 21-25, there is an indication that an offered solution to the issue of non-statutory subject matter is amending to recite a final step of comparing a test molecule with a calculated shape space. This is a mischaracterization of an offer that was made to amend to include some type of testing of a test molecule via a physical assay. Such physical assaying practice was discussed as being statutory

subject matter due to being concrete and tangible as a physical action, and not merely comparing without requiring some type of physicality representation or action as set forth in said REMARKS section.

PRIOR ART

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 144 is rejected under 35 U.S.C. 102(b) and (e)(2) as being clearly anticipated by Wang et al. (P/N 5,187,796).

Instant claim 144 is directed to an apparatus for performing the method of any one of claims 22 etc. Such an apparatus as cited in said claim 144 is reasonably a computer which can perform methods of claims 22 etc. Claim 144 is not worded so as to require any particular programming or method software per se, but only is "for performing" methods as instantly cited in claims 22 etc. A multitude of general purpose computers can carry out such methods. Wang et al. summarizes a general purpose processor in the abstract which can process instructions etc. which reasonably is such a general purpose type of computer. In column 4, line 54, through column 6, line 7, the processor of the reference is described as being capable of carrying out data

manipulation including data storage in a memory etc. as well as carrying out a program. The particular subject matter of Wang et al. is the subject matter of 3-dimensional structure problem computation including molecular modeling as summarized in column 1, lines 12-27, as is also the instantly claimed type of computation methodology. Thus, the processor of Wang et al. is clearly an apparatus for performing the methods as instantly claimed in claims 22 etc. and cited in instant claim 144.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571) 272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 10, 2004

Ardin H. Marschel 12/10/04
ARDIN H. MARSCHEL
PRIMARY EXAMINER